

REMARKS

Claims 1-93 are currently pending. Claims 1, 2, 21, 22, 64, 65, 82, 83, and 90 have been amended. No new matter has been added. Claims 1-93 stand rejected. Applicant reserves the right to pursue original and other claims in this and in other applications.

Claims 1-93 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hinoda (U.S. Pat. No. 4,547,074) ("Hinoda") in view of Kim et al (U.S. Pat. No. 6,285,020) ("Kim"). This rejection is respectfully traversed.

Claim 1 recites, inter alia, an image sensor pixel comprising: "a semiconductor substrate; a photoconversion device formed within said semiconductor substrate; a dielectric layer formed over said photoconversion device; and a mesh optical filter positioned over said dielectric layer and photoconversion device for passing light of a specific color to said photoconversion device."

Hinoda discloses a "color sensing device comprising four photo-electric transducers formed on a semiconductor substrate, an interference filter provided on the light receiving face of each transducer, a colored filter for selecting a specified transmission band of the interference filter, and three electrodes for delivering electric signals from the transducers individually, one of the electrodes being provided for two of the transducers in common." (Hinoda, abstract).

The invention of Hinoda requires the use of solid colored filters, and not a "mesh optical filter" to select the color of light to pass through. (Hinoda, Col. 4, ln. 1-30). More specifically, Hinoda uses solid colored filters in its selection of what light should be permitted to pass through, where the color of the solid filter corresponds to

the light that is desired to pass through. To the contrary, the claimed invention uses mesh optical filter to select the color of the light to pass through.

The mesh filters of the claimed invention select the light. "Metal mesh filters...may be designed to filter electromagnetic radiation according to wavelength." Spec., Para [0007]. It is the number, size and arrange of the apertures of the mesh filter that correspond to the filtered light. (Spec., para. [0040]) Thus the claim includes the limitation of "a mesh optical filter ... for passing light of a specific color to said photoconversion device" and the specification provides the support for and describes a mesh filter.

The Examiner states that since "the claim does not expressly exclude any use of colored filters, so it will be interpreted that applicant is basing the distinction from the device of Hinoda et al. on the fact that Hinoda et al. passes a range of wavelengths and not a specific singular wavelength." (Action, page 2)

The Examiner has respectfully misapplied the claim limitations and the Applicant's argument. Applicant submits that the claimed invention and Hinoda differ in the mechanism used to filter specific color for passing through. The claimed invention uses a mesh optical filter, not the colored filters of Hinoda, to select the color of light to pass through, regardless of whether the claim excludes the use of colored filters. Claim 1 expressly includes the limitation that "*a mesh optical filter*" is used for "passing light of a specific color." Hinoda, on the other hand, appears to disclose the use of *colored filters* for passing light. (emphasis added) Thus, the claimed invention and the invention of Hinoda use different approaches to permitting specific colors of light to pass through.

Thus, Hinoda fails to disclose "a mesh optical filter positioned over said dielectric layer and photoconversion device for passing light of a specific color to said photoconversion device." As such, the solid color filters of Hinoda are different from the mesh filters of the claimed invention. Thus the rejection of claim 1 should be withdrawn and the claim allowed.

Additionally, the Office improperly attempts to shift the burden of persuasion to the Applicant when suggesting that the "Applicant ... attempts to read the teachings of Hinoda et al to limit specifically a solid filter. However, neither the abstract nor column 4, lines 1-30, of Hinoda et al to which the applicant refers limits the filter to specifically solid filters." (Office Action, p.17) To the contrary Hinoda does not teach or suggest anything but the use of a solid colored filter. With reference to Fig. 3 of Hinoda the colored filters 41-44 are shown as a solid layer. It is improper for the Office to attempt to broaden the coverage of Hinoda's specification where there is no support provided in specification, and where Hinoda does not disclose or suggest the provision of anything but solid *colored* filters to filter the light.

As such, the rejection of claim 1 should be withdrawn and the claim allowed.

Kim discloses an "Enhanced Optical transmission apparatus with improved intersurface coupling." (Kim, Title) Kim fails to disclose "a mesh optical filter positioned over said dielectric layer and photoconversion device for passing light of a specific wavelength to said photoconversion device."

The Office Action suggests that Kim, through "the use of an optical transmission apparatus comprising a metal film...with aperatures...for passing a particular wavelength of interest" and points to column 3, lines 17-30 of Kim as support. However, the column 3, lines 17-30 of Kim teaches something different.

Contrary to the statement by the Office Action, Kim, similar to Hinoda, discloses the use of solid color filters "for passing light of a specific color." Kim teaches that the film being "opaque in the wavelength of interest," (Kim, Col. 3, lines 27-29); thus, opaque film is a colored filter. As noted above, the use of a colored filter or a opaqued film is different from a mesh filter. A colored filter permits the passing specific wavelengths of light based on the color of the filter. To the contrary, a mesh filter permits the passing specific wavelengths of light based on the number, size and arrange of the apertures of the mesh filter to select the light to be filtered. (Spec., para. [0040]). As such, Kim's opaqued metal film is different from the mesh filters of the claimed invention. Therefore, Kim does not cure the deficiencies of Hinoda and the rejection of claim 1 based on Hinoda, in combination with Kim, should be withdrawn and the claimed allowed.

Furthermore, the Office has not provided any motivation or suggestion in Kim or Hinoda to combine their teachings to achieve the claimed invention. The Office simply relies on the blanket assertion, without any support "that it would have been obvious." The Office has failed to satisfy their burden of proving any obviousness and thus the rejection of the claim should be withdrawn and the claim allowed.

Additionally, Kim is not directed at filtering light for pixel arrays and the Office has not provided evidence in Kim of being able to combine any teachings of Kim with the teachings of Hinoda.

Independent claims 21, 26, 45, 64, and 78 have similar limitations as claim 1 and are allowable for at least the reasons noted above with respect to claim 1. As such, the rejection of these claims should be withdrawn and the claims allowed.

Application No. 10/725,494
Amendment dated January 16, 2007
After Final Office Action of October 16, 2006

Docket No.: M4065.0917/P917

Claims 2-20, 22-25, 28-44, 47-63, 65-77, and 80-81 are respectively dependant from claims 1, 21, 26, 45, 64, and 78, and are allowable for at least the reasons noted above. The rejection should be withdrawn and the claims allowed.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Dated: January 16, 2007

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371

Michael A. Weinstein

Registration No.: 53,754

DICKSTEIN SHAPIRO LLP

1825 Eye Street, NW

Washington, DC 20006-5403

(202) 420-2200

Attorneys for Applicant